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EXTRACTION OF CATARACT WITHOUT IRIDEC- TOMY, OR SIMPLE EXTRACTION

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After holding sway for a period of twenty-five years, it seems probable that Graefe's operation for the extraction of cataract is about to give way for another and more successful method.

The operation devised by the brilliant Graefe was a great improvement on the methods in vogue at that time and statistics go to prove the value of his innovation. But recently there has been a return to the old corneal flap without an iridectomy and the operation is called simple extraction.

The coloboma caused by the iridectomy has long been a source of annoyance to the operator on account of its cosmetic results, and also of some loss in acuity of vision to the patient from the unnatural size of the pupil.

To extract the lens and preserve the shape, size and activity of the pupil and at the same time improve the vision must certainly be the aim of the operator and must constitute the "ideal operation."

It seems now that we are about to accomplish this desideratum, if we have not already done so. Two things have combined to make possible such results, as I shall presently mention and they are: First, Graefe's knife for cataract operation, and second, antiseptic measures to prevent supuration.

Whatever may become of Graefe's operation as it is known all over the world, his knife is likely to live. It may be modified, but to him will always belong the credit for superceding the old triangular knife by the long narrow blade now in use.

Antisepsis, in its relation to cataract extractions, plays as important a role as it does in any other operation. Antiseptic precautions should be carried out with scrupulous care in every case, so as to make the statistics of this operation show the best possible results.

Carefully prepared statistics of surgical operations made by reliable men must have great weight in deciding the propriety and impropriety of any operation. We look to men who have large opportunities for the results of their work. Men in more limited fields must be influenced more or less by those whose fields are more extended.

In cataract operations, the older cities of Europe furnish the largest number *pro rata*, while in our country the Eastern cities have apparently more than the Western. In considering the results of cataract extractions we must naturally refer to the cases reported by Dr. Knapp, of New York City, whose extensive experience in Europe and this country makes his statistics of the greatest value.

He has recently completed his report of 1,000 cases and it is a matter of great interest to see what his results have been, and I shall refer to them hastily: In his third hundred he had 6 per cent of loss, 3 per cent of imperfect results, and 91 per cent of good results, but among the latter not one of them is reported as having perfect vision.

In the fourth and fifth hundred cases, which are reported together, there was a total loss of 11.5 per cent, a moderate result in 6.5 per cent, and good results in 82 per cent.

In the sixth hundred there was a loss of 10 per cent, moderate results in 1 per cent and good results in 89 per cent.

In the seventh hundred there were 5 per cent of failures, 7 per cent of moderate results, and 88 per cent of good results.

In the eighth hundred there was a loss of 2 per cent, moderate results in 8 per cent, and good results in 90 per cent.

These operations were done after Graefe's method. The dissection of the capsule was modified latterly, but practically they all come under one class.

The next hundred which he reports were done by the simple extraction, the old method which has been recently revived, without an iridectomy. The increased percentage of good results is at once apparent as there was in this series a loss of only 1%, moderate results in 3%, and good results in 96%.

Most striking evidence of the superiority of this operation is shown in the number of cases which have a vision of $\frac{20}{xx}$, which in this series amounted to 21%. This phenomenally good result is due to the fact that Dr. Knapp makes dissections of the capsule very soon after the extraction is done, and in that way as an ultimate result obtains a much higher percentage of perfect sight than he ever did before.

His last hundred cases are still better; he reports here a loss of 1 case, moderate results in 2%, and good results in 97%. The ultimate result of this series is something unprecedented in the history of cataract extraction so far as my access to reports is concerned.

He has a total result of perfect vision in 30%. This speaks louder in praise of this operation than words. It is hard to say how much the final results will be improved, but certainly so far the statistics are decidedly in favor of simple extraction without iridectomy.

Simple extraction without iridectomy is not possible in every case. It is not advisable in over-ripe cataracts nor in cases where there are posterior synechiæ. There are also complicated cases where the old method would be better.

So far I have had only 32 cases of simple extraction and I

report them for what they are worth. They are certainly encouraging as showing a fair average of good results.

The cases are as follows:

1. W. W. æt., 30. Cataract semi-hard, no complications. Extraction without iridectomy. Spontaneous reduction of iris. No inflammation. Pupil clear, round, central and active. $V=0.5$.

2. P. R., æt. 69. Extraction without iridectomy. Spontaneous reduction of iris. No reaction. Pupil round and central. $V=0.5$

3. J. K., æt. 52. Extraction without iridectomy. Spontaneous reduction of iris. No reaction, round central pupil. Cornea nebulous from old keratitis, but vision excellent considering this complication. $V=0.1$.

4. Mrs. C. H. Cataract mature L. e. and hyper-mature R. e. Operation R. e. Lens removed without complication. There was a small cystoid cicatrix at the inner angle of the wound, but it caused no irritation. No reaction. Pupil drawn upward and oval in shape. Vision good. 0.1.

5. Operation L. e. In making the corneal section, the free edge of the iris fell over the knife and in cutting out the pupil was enlarged slightly upward. I did not excise the iris to its periphery, but completed the operation as usual. No reaction. Excellent recovery with pupil enlarged upward. $V=0.1$.

6. V. D. æt., 69. Cataract mature R. e. Simple extraction, spontaneous reduction of iris. Second day wound spread and iris prolapsed. Healed with cystoid cicatrix. Two months later excised cicatrix. $V=0.2$.

7. Mrs. E. J. C., æt. 62. Cataract not quite ripe. Extraction without complication. Iris reduced spontaneously. A small quantity of soft cortical substance remained in the pupil which was quietly absorbed. Not the slightest reaction. $V=0.3$.

8. J. M. B., æt. 68. Extraction without complication. Iris reduced spontaneously. Small quantity of soft cortical substance remained in the pupil. No reaction. On eighth day

struck eye with his hand and panophthalmitis followed and the eye was entirely lost. $V=0$.

9. Dr. R. Cataract hypermature, waxy lens. Simple extraction. Spontaneous reduction of iris. The next day his son fainted and fell on the bed his hand striking his father's eye. This caused a rupture of the wound and prolapse of the iris. Excised iris. Marked chemosis of conjunctiva and infiltration of upper lid. Inflammation subsided in three weeks. Could see objects in the room. $V=1/xx$.

10. W. W. E., æt. 76. Simple extraction. Spontaneous reduction of iris. Large amount of soft cortical; some remained. Cystoid cicatrization formed in the course of two weeks. Cortical substance absorbing when discharged. $V=1/xx$.

11. Dr. W. G. R.f æt. 72. Simple extraction. Spontaneous reduction of iris. Pupil clear and round. Fourth day the wound opened but iris did not prolapse; closed again in three days. $V=0.4$.

12. S. T. H., æt. 83. Simple extraction. Spontaneous reduction of iris. $V=0.2$.

13. Mrs. H. S., æt. 69. Simple extraction. $V=0.2$.

14. Mrs. E. C., æt. 70. Waxy, semi-transparent lens, large and broad. Simple extraction. Rupture of iris at pupillary margin. Large amount of pigment scraped off. $V=0.1$.

15. M. N., æt. 82. Simple extraction. Lens mature. No complication. Pupil round and active. $V=0.1$.

16. Miss A. N., æt. 58. Simple extraction. No inflammation or reaction. Pupil oval but clear. $V=0.4$

17. H. H., æt. 63. Simple extraction. Lens mature. $V=0.1$.

18. Col. I. H. P., æt. 79. Simple extraction. Pupil central, round and active. $V=0.7$.

19. Mrs. M. A., æt. 29. Prolapsus iridis and excision. $V=0.1$.

20. Mrs. G. K., æt. 47. Simple extraction. Pupil central, round and active. $V=0.4$ seventeen days after the operation.

21. E. C., æt. 63. Simple extraction. Lens capsule came out before the lens, removed by slide manœuvre. $V=0.1$.

22. Mrs. M. L., æt. 62. Simple extraction. Pupil central but irregular from two points of adhesion to membrane. $V=0.2$.

23. Mrs. F. J. W. Simple extraction. Prolapsus iridis and excision. $V=0.1$.

24. Mrs. S. J. K., æt. 79. Cataract over-ripe. $V=0.1$ two weeks after the operation.

25. L. R. H., æt. 51. Simple extraction. Iris replaced with spoon. $V=0.3$ ten days after the operation.

26. Mrs. J. P. P., æt. 74. Cataract over-ripe. Spontaneous replacement of iris. Seven days after operation. $V=0.2$.

27. Mrs. J. P. P. L. e. Simple extraction. Spontaneous replacement of iris. $V=0.2$.

28. Mrs. L. E. W. æt. 74. Simple extraction. Spontaneous replacement of iris. Cystoid cicatrix. $V=0.2$.

29. Mrs. M. H., æt. 62. Simple extraction. Iris replaced with spoon. Prolapse of iris upward and outward during first night. $V=0.1$.

30. Mrs. E. S., æt. 78. Simple extraction. Spontaneous replacement of iris. Slight amount of cortical matter remained in the anterior chamber which underwent absorption slowly. $V=0.2$.

31. Mrs. F. K., æt. 62. Simple extraction. Spontaneous reduction of iris. Pupil central, round and active. $V=0.4$.

32. Mrs. C. C. C., æt. 62. Simple extraction. Iris replaced spontaneously. $V=0.4$.

In reviewing the results in these cases, which are all primary, having been made from seven to ten days after the operation, they appear satisfactory. In one there was a vision of 0.7; in two, 0.5, in four, 0.4; in two, 0.3; in eight, 0.2; in twelve, 0.1; in two, $\frac{1}{xx}$ and in one a total loss. The latter case did well for eight days without the slightest evidence of reaction; in the night he struck his eye with his hand, and the next morning the eye was tender, and very soon a violent panophthalmitis

set in. Such a loss should not fairly be counted, as it was not dependent upon the operation or the operator.

In one case there was a traumatic prolapse of the iris caused by a son of the patient's fainting and falling on him and rupturing the wound. In two cases the prolapsed iris had to be excised.

In three cases there was a small cystoid cicatrix but vision was not materially impaired thereby. In one case there was a nebulous condition of the cornea from old granular lids which interfered very much with vision. The pupil was central, round and active.

In nearly all the cases, although the notes do not show it, the pupil was round, central and active. In some there were one or more adhesions to the capsule, but not sufficient to alter the shape of the pupil. I have no doubt but that the ultimate vision in these cases could be very much increased by secondary operations.

The strictest antiseptic precautions were carried out in all of these operations. The antiseptic fluid used was that of Panas, which is hydrarg. biniodide one part, alcohol 500 parts and water 20,000 parts. In the first place the patient's face is washed with this solution and the conjunctival sac flushed with it; the instruments are laid in a bath of the same, and the operator's hands and those of his assistant are washed with it also.

The better plan to pursue in the operation if you have an assistant who can be depended upon, is to dispense with the use of the speculum entirely. Let the assistant open the lids while the corneal incision is being made, cocaine having been instilled about five minutes before the operation; after the corneal incision the cystitome is introduced and the lens capsule freely opened. This is one of the difficult steps of the operation, as the lens sometimes comes forward making it difficult to pass the cystitome over the iris. It is well to pass the cystitome pretty far down so as to insure a free incision through the capsule; as it is drawn up the upper portion of the capsule should be freely opened, then the lids are allowed to close.

The next step is the expulsion of the lens; the patient is di-

rected to turn his eye downward and then with the point of the finger, which I prefer, or with the spoon pressed against the lower lid pressure is made from below upward, and in a short time the edge of the lens pushes the iris forwards through the incision, and finally the lens presents and is very soon expelled. If any soft cortex remains it is better to remove it at once by a slight manœuvre before the iris recedes into the incision.

If the iris does not retract spontaneously, it is very easily replaced with a spatula, or with a spoon.

Then a drop of eserine is instilled. I then wet a small piece of cotton in the antiseptic and place it over the closed lids, and keep it in place by a small piece of isinglass plaster half an inch wide, which extends from the forehead down to the cheek. I always close both eyes in a similar manner for a day or two after the operation. No bandage is applied and the patient is then left perfectly free to move his head as he will. I have found that dispensing with bandages has added to the comfort of the patient, and not a little to the success of the operations. The advantages of this method are that it can be inspected without any inconvenience to the patient; by simply detaching the plaster below, the compress of cotton can be lifted and the appearance of the lids examined. If there is no puffiness of the lids and no secretion, I generally do not inspect the eye for two or three days; at the end of that time it is well to examine the eye and if the wound is thoroughly closed, there will be little or no occasion for the use of atropine, but if the iris should show any tendency to reaction, a drop of atropine can now be used. There is often a tendency to iritis the second or third day after the operation, but this can readily be controlled with atropine. If the iris should prolapse and become the source of much irritation, it is better to excise it at once. But in other cases the prolapse gives rise to very little disturbance, and in such cases it is better to wait hoping that the process of cicatrization will render the operation unnecessary.

Dr. Knapp says: "If I review my cases the opinion is

forced upon me that the simple extraction is not only the best, but the safest method of removing cataract. The iris, spread out as a *velum interpositum* between the corneal section and ciliary body, protects this, the most susceptible part of the eye, from the deleterious substances that may enter through the wound."

Another consideration, in my judgement, is that if any soft cortical substance should remain, it would cause less harm behind the iris than it would in a case where an iridectomy had been made, and where the swelling lens substance could come directly in contact with the corneal incision. The trauma inflicted upon the iris by the expulsion of the lens in a smooth, uncomplicated simple extraction, is certainly less than in Graefe's extraction with iridectomy.

With a liberal corneal incision the lens comes out with surprising ease, and ordinarily the iris replaces itself spontaneously. When it does not, it is easily replaced with a spatula or with the edge of the spoon. The latter has the advantage in that it is somewhat wedge-shaped, and when introduced into the lips of the wound opens them more widely, and thus favors the prompt reduction of the prolapse. After the escape of the lens and while the iris is still out of the incision, it is better to remove all the soft cortex if possible. The slide manœuvre should be continued until every piece is out.

If the iris is allowed to go back into position, it is more difficult to cause its prolapse, as it no longer has the mass of the lens to force it out.

In one of my cases there was a slight rent of the pupillary edge of the iris, but it caused no trouble.

ON CYCLOPLEGIA POST-DIPHTHERITICA.

BY DR. O. LANDMANN, TOLEDO, OHIO.

By cycloplegia is meant a paralytic or paretic state of the ciliary muscle and the consequence is a complete or incomplete abolition of the power of accommodation. Broadly considered accommodation is a faculty which enables us to change the shape of the crystalline lens so that we can obtain images upon our retinae of near objects. It is accompanied by the phenomena of convergence and always, under normal conditions, by contraction of the pupils. During its performance the zonula of Zinn (or suspensory ligament) is relaxed through contraction of the muscle and the anterior and posterior convexities of the lens are increased, the former more than the latter. Anything which abolishes or interferes with this function renders unaided vision, for near objects, indistinct.

The purpose of this paper will be to dwell mainly upon cycloplegia following *diphtheritis faucium* and *nasalis*.

Paralysis means to me abolition of motority, sensation or loss of function; it is a symptom.

I will attempt to explain my conception of the first: "motority."

No investigator has shown the existence of the development of nervous elements in that undifferentiated mass of protoplasm, called amœba, the study of which discloses that the undifferentiated protoplasm displays certain vital fundamental phenomena.

1. It is receptive and assimilative.
2. It is metabolic and secretory.
3. It is respiratory.
4. It is irritable and automatic.
5. It is reproductive.
6. It is contractile.

This latter property differs from that of the muscles in the fact that in the *amœba* the flow of protoplasm is irregular, in the other regular.

This property of motority obtains independent of nervous elements.

Bernard through the means of Curara demonstrated the existence of contractibility as an independent quality of muscular tissue. Curara by poisoning the nerve end organs permitted, by isolating each organ, the study of each.

I can conceive of a peripheral paralysis being due to an abnormal condition of the muscle or nerve. A muscle can be paralyzed; the nerve may be intact in structure and function and still some abnormal state of the muscle annul its function. For examples:

A fatty degeneration or neoplasm preventing contraction, the nerve being unaltered; or a trauma placing a muscle in a state of noncontractibility; cysticercus in a muscle; atrophy; malnutrition, etc. The third cranial nerve takes its origin in the grey matter of the floor of the aquæduct of Sylvius in the region of the superior corpora quadrigemina. It arises from several nuclei, the most anterior controls the ciliary muscle, the one for the sphincter of the pupil is next, then come the nuclei of the origin of the remainder of the third, and the nucleus of the internal rectus comes last.

Recent observations would indicate a close connection between the third and sixth; fibres from the latter passing to the external rectus and a bundle crossing over and joining the third without passing through any of its nuclei. Moreover, I am inclined to the belief that there are fibres from the third going the sixth, having seen a case of paresis of all the muscles in the right eye supplied by the third, with paresis of the external rectus of the L. E. Still this is only a clinical observation.

This facilitates conjugate sinistral and dextral movements. It supplies all muscles except the superior oblique and the external rectus. The third arising from several nuclei and supplying muscles which, in some instances, are opposed to

one another must be regarded as a mixed rather than a single nerve.

The nucleus of the fourth lies directly below that of the third.

The causes of cycloplegia will be divided into nervous and muscular on account of the conception as previously advanced of the paralytic or paretic state.

Nervous.—In general anything that may induce paresis or paralysis of the third in any part of it. Lead poisoning, poisoning from meats, after trigeminus neuralgia, syphilis, rheumatism, diabetes mellitus, herpes zoster ophthalmicus, acute gastritis, trauma, sometimes in sympathetic ophthalmia, gumata, exostoses, tumors, neuritis, hæmorrhages in the brain substance or at the base of the cranium, tabes dorsalis, multiple sclerosis, uterine troubles, and finally anything which may affect the local nervous mechanism.

Muscular.—Atrophy, fatty degeneration, waxy degeneration, malnutrition, anæmia, febrile states as typhus, plastic inflammation, tumors and glaucoma.

I think also a condition of the percipient elements of the eye can be such that the impressions made upon them may be insufficient to evoke the mental state proper to induce a contraction of the ciliary muscle as chorio-retinitis centralis with cycloplegia, glaucoma, etc.

There may be cycloplegia alone or cycloplegia with dilatation of the pupil, called also ophthalmoplegia interna. The peculiarity of ocular paralysis or paresis following diphtheria is ciliary paralysis or paresis with almost intact reaction of pupil. In some of the cases which have fallen under my observation there was a slight dilatation. The resultant phenomena are, loss of accommodation, strabismus convergens concomitans, and occasionally micropsia, *i. e.*, objects which with complete strain of accommodation can still be clearly seen, appear diminished in size, because our judgement of the sizes of objects depends not only upon the size of the retinal image but also upon the distance into which we project the image. Our judgment of the distance of the object depends in the greater degree upon the convergence of the visual axis and upon the accommodative effort.

Paralysis of the muscles of the pharynx and soft palate will generally be associated with this paralysis. The uvula and epiglottis stand obliquely, the uvula remains (alone) more or less motionless, during the phonation the vocal chords meet imperfectly because of the retarded movement of one of the processus vocales. According to Pagenstecher the paralysis is confined to one-half of the throat. I looked for anæsthesia but found it absent. The relaxed state of the muscles at the entrance of the pharynx causes guttural respiration, difficulty in swallowing, regurgitation of food through the nose, nasal twang of voice.

(These paralyses come on as sequelæ 2 to 6 weeks after subsidence of the inflammatory symptoms. Prognosis favorable. Recovery minimum ten days).

Morbid Anatomy relating to the paralysis. A careful examination of the nervous centers, made in certain fatal cases, has revealed nothing which throws light on its ætiology (Smith) and the most recent hypothesis is that peripheral changes in the nerves are the cause. In other examinations there were found: Extensive changes in the cord and its membranes, hæmorrhages around the roots of nerves, proliferation of nuclei in the grey matter, hæmorrhages, inflammation and degeneration in the peripheral and central nervous system; muscular changes, atrophic, fatty, and waxy degeneration (a form of coagulative necrosis, i. e. the contractile myosin coagulates into a lustrous homogenous mass). There is, evidently, a lack of harmony in the results of examinations.

Dec. 12, '89. S. J., æt. F. History: Had had diphtheria nasalis. Duration, about 22 days. Presented himself for examination two weeks after the subsidence of the inflammation.

Status præsens. Anæmic, nasal speech, wandering pains, regurgitation of solids and liquids when eating or drinking, rhinitis and pharyngitis, paresis of soft palate and pharynx.

R. E. $V=\frac{6}{XII}$ Hm. 1.50 D. $V=\frac{6}{VI}$. Sn. 2.25 in 40 cm.

+3 D. Sn. $\frac{1}{2}$ in 8. Pupil reaction normal.

Sn. 1 in 90 cm. Colors normal; visual field

normal.

L. E. Idem.

B. E., $\frac{6}{VIII} + 3$ D., Sn. $\frac{1}{2}$ in 8, F. C. P. normal.

Sn. 1 in. 1 m.

Ophthal. R. E. H. 1.50 D. L. E. 2.00 D. Fundi normal.

Examination revealed incomplete loss of accommodation. Diagnosis: Cycloplegia of B. E. Examination of sister, who was now one week convalescent, showed eyes normal.

Dec. 13. Sn. 2.25 in 40. Therapy. Cocaine. Faradic current.

Dec. 14. Idem.

" 15. "

" 17. "

" 18 Sn. 1.75 in 25.

" 20 " 1.50 " "

Ophthal., R. E. 1.50

D. L. E. + 2.00 D.

Strabismus concomitans. Homonymous diplopia in 6 m. Movements of eye perfect.

Dec. 22 Sn. 1.25 in. 25,

Therapy the same.

" 24 " 0.8 " "

" 27 " 0.5 " 30,

" 31 " $\frac{1}{2}$ in. 12 cm. Sn. 1 in 1 m.

Feb. 3 " $\frac{1}{2}$ " 8 " Sn. 1 in 1 m. Strabismus has disappeared on the same day.

Examination of sister: Alternating strabismus.

Homonymous diplopia in. 6 m. Movements of eye perfect in 1 m.

B. E. $< \frac{6}{VI}$. Hm. +1. D. S = $\frac{6}{VI}$ Sn. $\frac{1}{2}$ in 40.

Strabismus after a few days was convergent, and of left eye. This disappeared spontaneously in about three weeks.

Remarks. Although there was marked paresis of the muscles of deglutition and of the pharynx, still this was not treated in order to observe the effect of faradization upon the ciliary muscle.

Method. Antiseptic precautions were observed, the hands were washed in a solution of bichloride of mercury (1-5,000), the conjunctiva was rendered anæsthetic by cocaine (2% solution). I placed one electrode upon the temple and grasping

the other in my left hand used the index finger of my right as the rheophore, passing it slowly over the ciliary region. The time employed for each eye was 5 minute. The recovery was quick compared with the pharyngeal paralysis and that of the soft palate, for these continued about three weeks after the complete recovery of the accommodation. The patients had used porter for a few days.

The strabismus follows the cycloplegia, and is a result of the hyperopia, for it disappears with the restoration of the power of accommodation. Again, the movements of the eyes were unimpaired and hence the squint, in the cases observed by me, was non-paralytic.

Conclusions. I believe that in the majority of cases, a perverted state of the blood from the disease, influencing the irritability and nutrition of the *muscle*, and not of the *nerve centres* or *nerve endings* is the cause of cycloplegia sine iridoplegia. I have seen a case of anæmia in which there was marked paresis of accommodation alone, so that the patient who was a young woman, æt. 19, read only Sn. 2.25, B.E. emmetropic. Fundi anæmic. Pupils, convergence, color-sense, and fields of vision normal. Menstruation regular, but dysmenorrhagic. Recovered after three months of a course of tonic treatment. This case is mentioned merely to strengthen my position.

The faradic current was used to restore the nutrition and irritability of the muscle.

In 80% of the cases seen by me there were cycloplegia and strabismus convergens concomitans. That out of ten cases there was twice diphtheritic conjunctivitis, and in one of these, a child of 19 months, dacryo-cystitis and paralysis of the orbicularis palpebræ of the same eye.

Some objections to other hypotheses. One authority states that the different nuclei receive their blood supply from different sources, and hence the fact that we may have cycloplegia with or without iridoplegia. The inosculation is so perfect in the brain (the gray matter of the aqueduct of Sylvius is characterized by the large number of vessels) and the location of the nuclei so close

that if one would suffer the others would almost necessarily, and we would get all of the results of oculomotor—paralysis, ptosis, mydriasis, etc. If hæmorrhages into or around the nuclei formed the primary cause, the others would suffer. That inflammation of the terminations of the nerves causes the pareses may be the case in the pharyngeal and palatal muscles on account of the direct inroad of the disease on these parts. No such changes have been demonstrated in the terminations of the 3d nerve in the involuntary muscle fibres of the ciliary muscle.

I think, however, in some cases we may look for a central cause.

Hence, in conclusion, I would recommend the *direct conjunctival method* in various cases, viz., In ocular paralyses, internal or external; in anæsthesia of the retina; in atrophy; in chorioiditis; opacities of the vitreous; in asthenopia, retinal or other varieties; in retinitis pigmentosa; after tenotomies in conjunction with exercises with the types of Snellen or Jaeger.

The current used must be governed by the object to be accomplished. Thus we can get an indirect electrolytic action by the galvanic current to promote absorption of exudates, etc., by the Faradic current, stimulating and tonic effect.

The electrodes may be of metal and the most desirable forms are either olive or a spatula-shaped curved on the flat to correspond to the convexity of the eye-ball; or the finger may be employed. If necessary, a spring-stop speculum may be inserted, and then, by moving the eye, its various quadrants can be treated.

The plan proposed in ophthalmic works for the application of electricity is to place one electrode on the closed eye-lid. In this way the current has to traverse the orbicularis palpebræ, and hence I consider that the therapeutic effect is very much diminished. Its field, too, as a remedial agent can be enlarged.

OPHTHALMOLOGY IN PARIS.

BY ERNEST HART.

Clinic of Professor Panas: De Wecker's Operation for Ablation of the Lachrymal Gland: Capsular Advancement: Equatorial Puncture of the Sclerotic: Clinic of the Quinze-Vingts: M. Landolt's Clinic: Muscular Advancement in Treatment of Strabismus: Defective Motility: Operative and Didactic Courses.

Paris now presents at least as many advantages for the study of ophthalmology as the other great cities of Europe. The "official teaching"—that is to say, that which is given in the general hospitals of Paris and under the auspices of the Faculty—is of recent date, at least as a special branch of instruction. Formerly diseases of the eyes were treated as part of the general domain of the surgery of the wards, with results which were admittedly unsatisfactory, and which I do not hesitate to describe as deplorable.

The Chair of Ophthalmology of the Faculty of Medicine was founded ten years ago (1879). It is occupied by M. Panas, and is installed at the Hotel Dieu. It includes the titular professor, a *chef de clinique* and his assistant or sub-chief, three house-surgeons and six dressers elected by examination; a chief of the special laboratory, and, this year, an assistant professor have been attached to the clinic. The clinical service includes forty beds for males and twenty-four for females, of which four are nursery beds for the use of newborn and very young infants. There is "a laboratory of histology, bacteriology and physiology," and a daily out-patient department. Every Wednesday there is a lesson in ophthalmoscopy for the students; twice a week (Monday and Friday) clinical lectures

and operations on the in-patients by the professor; during the winter session, practical courses on refraction by the *chef de clinique*; during the summer session, conferences on the histology of the eye, normal and pathological (with illustrative lantern slides), by the *chef de laboratoire*; and further, a course of operative exercises. The latter course, which has hitherto been carried on by the titular professor, will henceforth fall to the assistant professor, who will hold office for nine years. The results of the work of the clinic and the laboratories appear in the *Archives of Ophthalmology*, founded by Panas and Landolt, and still continued, with the collaboration of Gayet of Lyons and Bardal of Bordeaux.

By the side of the clinics maintained by the state there exist private clinics, which have had and have great influence on teaching and progress. The most celebrated in earlier days were those of Desmarres, Sichel and Liebreich, which were the *rendezvous* of European ophthalmologists, where all of us have found something to learn, and where von Graefe and Horner did not disdain to come for instruction. There are many of them at present; especially should be mentioned those of de Wecker, Landolt, Meyer, Galezowski—all of them competent and accomplished men. De Wecker and Landolt take the lead by their scientific reputation and the originality of their work.

The clinic of M. de Wecker is one of the most important in Paris. About 6,000 new patients are treated annually. These afford abundant material for the delivery of courses of lectures which are very interesting, and are followed by a considerable number of students and physicians of all countries. The clinical lectures, which are followed by the most various operations, are given at 3 o'clock on Monday, Wednesday and Friday. Among these operations are some which are especially attractive to visitors, by reason of their novelty. Such is the operation for capsular advancement, which, in the opinion of M. de Wecker, is destined to replace muscular advancement in the majority of cases. It must, indeed, be acknowledged that the result is absolutely identical; the capsule is detached above

and below the muscle which is to be advanced, and the sutures, while producing a fold of the tendon of the muscle, produce, when they are fastened, a forward traction of the muscle, such as would have been obtained by detachment of the insertion of the tendon. In fact, capsular advancement is nothing less than muscular advancement without section of the tendon, which so far simplifies the operation, and renders it notably less laborious. Another quite recent operation consists in ablation of the lachrymal gland, with the object of arresting lachrymation when the cure has not been obtained by the classic treatment with bougies. The excision of this palpebral portion of the lachrymal gland is very simple as an operation, and it is sufficient to lessen the lachrymal secretion to a very great extent. It therefore affords a valuable resource in the treatment of rebellious cases which have often been the despair of ophthalmologists, and which weary the patience of the sufferer. Another interesting series of operations are those of equatorial puncture of the sclerotic, for glaucoma in those cases in which the operations habitually practised on the anterior chamber—sclerotomy and iridectomy—have not given the expected results. This, however, is a very old procedure in this country, and was a favorite one with Zachariah Lawrence. Among the most noteworthy publications of the clinic of the Rue du Cherche Midi must be mentioned the *Traite Complet des Maladies des Yeux*.

The ophthalmological clinic of the Quinze-Vingts, another ophthalmological institution which deserves a visit, was founded in 1881 by M. Fieuzal, and in 1886 M. Trousseau was also appointed. On the death of its founder in July, 1888, it was reorganized, and it includes now two distinct services entrusted to MM. Abadie and Trousseau, who give alternately consultations on ocular diseases three days a week. The other three days are given up to operations arising out of the consultations. Each service includes thirty-three beds, and, besides the *chef de service*, there is an assistant physician, M. Valude, with M. Abadie, and M. Chevallereau with M. Trousseau, and two house-surgeons who undertake the preliminary

examination of the patients and their subsequent care. Besides the operations and consultations, the surgeons attached to this clinic give every day conferences and clinical lectures, which are attended by a considerable number of French physicians and students as well as visitors. The house-surgeons also give technical explanations in various subjects of ophthalmology. To the clinic is attached a histological laboratory for the study of the specimens proceeding not only from the operations, but also from *post-mortem* examinations practised on the patients of the blind asylum of the Quinze-Vingts. This laboratory possesses at present about 2,000 specimens which have been and are capable of being utilised, from the point of view of scientific research; it is open to foreign students. It comprises, further, two rooms reserved, one for the museum containing microscopical and other preparations relating to the pathology of the eye; and the other, a laboratory of bacteriology founded last year, in which already some useful researches have been carried out. Seventy-three thousand patients have been treated at this clinic since its foundation in 1881, and its statistics indicate its value and extent. In 1887, 1,800 operations were practised here, 518 of which were for cataract, and 48,000 consultations were given. This year the number of consultations has risen to 53,600, which included 2,167 operations, among which were 622 for cataract.

The clinic of Dr. Landolt, situated at 27, Rue St. André des Arts, is frequented daily by from 60 to 100 patients. M. Landolt, assisted by two surgeons, attends there very regularly every day from noon till 2 o'clock. He operates twice a week, Wednesday and Saturday, and the operations are followed by conferences and demonstrations intended for practitioners and students. These lectures deal with the most varied subjects, the clinical and practical point of view predominating; and the presentation of interesting cases serves always to afford information such as theoretical lectures alone are often incapable of giving. The different territories of ophthalmology are successfully explored in this way, and there is a considerable collection of microscopical preparations which M. Landolt places

at the disposal of his pupils, in support and explanation of the demonstrations. One of the domains of ophthalmology which he has especially explored is that of the movements of the eye, studied from the physiological as well as from the pathological point of view. The importance and originality of the views of M. Landolt in all that concerns strabismus are well known. The etiology of that affection, the conditions which preside over its evolution and the means of curing it are very carefully studied. Each patient suffering from any defect whatever of the motility of the eye, is subject to complete examination, not only with reference to refraction and visual perception and the degree of strabismus, but also to the relative strength of each muscle and the degree of binocular vision. Ingenious methods and special apparatus are employed for illustrating these different points. I would especially draw attention to the methods employed in determining the fields of fixation or excursion of the eyes, so important from the point of view of prognosis and of operative indication. In relation to the treatment of strabismus and the muscular affections, Dr. Landolt combines the muscular orthoptic cure (stereoscopic apparatus of Hering) with the surgical cure. His researches on the relative force of muscles by means of the field of fixation have led him to prefer muscular advancement to tenotomy; he was one of the first and warmest supporters of this operation—more difficult, indeed, but more sure and now more generally approved.

The arguments which weigh in favor of muscular advancement were very clearly put forward by M. Landolt lately at the International Congress of Ophthalmologists of Heidelberg.

M. Landolt also affords at his clinic opportunities for studying the subject of insufficiency of convergence and defective motility, which the author considers as a first step toward a latent divergent strabismus. He has applied himself to the surgical cure of this affection, for which he recommends muscular advancement of the internal rectus in preference to tenotomy or setting back of the external rectus.

Together with numerous operations of strabismus, of cata-

ract, glaucoma, etc., M. Landolt practises a considerable number of operations on the eyelids. The surgical cure of trichiasis, of ectropion and entropion, has been modified by him in an original fashion. For ectropion and implantation of the eyelashes he has recently employed a sufficiently simple and efficacious procedure, which consists in the formation of two triangular flaps in the direction parallel to the free border of the eyelid. The one includes the eyelid which is to be set straight; the other, of the same form and dimensions, is formed only by the skin of the eyelid. It suffices to slide the second flap under the first to obtain a free border deprived of lashes. Other ingenious proceedings are employed for autoplasmic operations on the eyelids. Besides the methods by sliding flaps borrowed from neighboring parts, he has employed with success Reverdin's grafts, and quite lately has replaced this latter method by the skin graft of Thiersch, consisting in the implantation on a non-granular surface of a very thin flap of skin detached with a razor. In a case of exceedingly destructive epithelioma of the lower lid, flaps about 2 cm. long and 3 to 4 cm. wide were borrowed from the thigh, and were transplanted on to the site of the loss of substance. They became attached with such rapidity that eight days afterwards the extensive wound was completely covered over.

In addition to the clinical teaching, M. Landolt gives a course of operations on the subject or on the eyes of animals, and, as he speaks English fluently, English students are enabled to profit by his private operative courses given in that language.

Amongst his numerous publications may be cited those on the employment of instruments in ophthalmic surgery, which have been translated into English, such as "A New Procedure of Blepharoplasty and Optico-ciliary Section;" "Some Operations Practised on the Eyelids;" "Tenotomy of the Inferior Oblique;" etc. A considerable number of publications have been issued from this clinic during the last ten years; the most important work is the *Accommodation et Refraction*, which has

been translated into English ; an analogous work on the methods of exploration of the eye ; one on the disorders of motility, and the classical *Traite Complet d'Ophthalmologie*, of which he is joint author with De Wecker, and which is still in course of publication. His lectures on the diagnosis of diseases of the eyes, given at the Ecole Pratique, have also been translated into English. They give an excellent account of the principles which should guide the practitioner as well in the domain of refraction and optics as in that of clinical treatment.

In M. Landolt's clinic is not only produced work of pure speciality, but certain questions of general pathology are also studied there, in their relations to diseases of the eye. Thus quite lately M. Landolt published, on the occasion of the jubilee of Donders, an important study of verbal blindness, *Cecite Verbale*, in which will be found the relation of three interesting cases complicated with hemiachromatopsy.—*British Med. Journ.*

EDITORIAL NOTICES.

AMERICAN MEDICAL ASSOCIATION.

Section of Ophthalmology.

Chairman—George E. Frothingham, Ann Arbor, Mich.

Secretary—G. C. Savage, Nashville, Tenn.

FIRST DAY—JUNE 25.

1. Address by the Chairman, Geo. E. Frothingham, Ann Arbor, Mich., "The Need of Discussing Ophthalmic Subjects."
2. "The Prevention of Pain and the Improvement of the Stump following Evisceration of the Eye," by A. E. Prince, Jacksonville, Ill.
3. "What can We do to Induce the Government to Make the Census of 1890 Contribute Efficiently to a Clear Concep-

tion of the Causes of Blindness in the United States," by Robert Tilley, Chicago.

4. "Advances in Our Knowledge of Some Cerebral Ocular and Intra-Ocular Lesions which Facilitate the Diagnosis and Treatment of Important Diseases," by H. W. Williams, Boston.

5. "Ocular Symptoms of Diseases and Injuries of the Spinal Cord," by J. F. Fulton, St. Paul, Minn.

6. "Impaired Vision as a Result of Sunstroke," by A. R. Baker, Cleveland, O.

7. "Some Cases of Inflammation and Atrophy of the Optic Nerve, with Special Reference to Etiology and Prognosis," by J. L. Thompson, Indianapolis, Ind.

8. "The Non-Surgical Treatment of Strabismus Convergens," by E. J. Gardiner, Chicago.

8. "Tobacco Amaurosis," by Leartus Connor, Detroit.

10. "Paralysis of Accommodation from Concussion of Eyeball; Treatment," by Eugene Smith, Detroit, Mich.

SECOND DAY—JUNE 26.

1. "A Case of Sympathetic Irido-Choroiditis, Induced by Sarcoma of the Choroid, and Appearing Five Days After the Enucleation of the Sarcomatous Eye; Interesting Clinical History and Final Recovery," by F. C. Hotz, Chicago.

2. "Tumors of the Optic Nerve," by S. C. Ayres, Cincinnati.

3. "The Needless and Annoying Restraints after Eye Operations," by J. J. Chisolm, Baltimore.

4. "The Advantages of a Preliminary Iridectomy in Cataract Extraction," by LeRoy Dibble, Kansas City.

5. "Keratitis Trachomatosa," by J. H. Thompson, Kansas City.

6. "Gradation of Lenses," by Dudley S. Reynolds, Louisville.

7. "Glaucoma Fulminans, after Operations," by P. D. Keyser, Philadelphia.

THIRD DAY—JUNE 27.

1. "Traumatism of the Eye," by C. M. Hobby, Iowa City

2. "Ametropia in Schools," by F. B. Tiffany, Kansas City.
3. "The Ametropiæ and Their Relation to Insufficiencies of the Recti Muscles," by J. W. Wright, Columbus, O.
4. "Embolus of the Inferior Branch of the Retinal Artery Visible with the Ophthalmoscope, Disappearance of Embolus and Recovery of the Greater Part of Visual Field under Massage and Nitrite of Amyl," by H. Gifford, Omaha, Neb.
5. "Intra-Ocular Diseases Caused by Chronic Rhinitis," by J. G. Sinclair, Nashville, Tenn.

Other papers have been promised, but as yet the subjects have not been announced. All who expect to read papers are requested to send the title at once, either to the Chairman or Secretary of the Section, otherwise they cannot be placed upon the programme of proceedings, which will be published soon by the Committee of Arrangements.

AMERICAN OPHTHALMOLOGICAL SOCIETY.

43 Pratt Street, }
Hartford, May 30, 1889. }

The Twenty-fifth Annual Meeting of the American Ophthalmological Society will be held this year on Wednesday and Thursday, the 17th and 18th of July, at the Pequot House, New London. New London may be reached from New York by trains leaving the Grand Central Depot, or by the Norwich Boat from Pier 40; from Boston by the Shore Line, or the N. Y. and N. E. The rates at the Pequot House are \$3.00 per day, for members of the society and their families.

With the view of securing an interesting discussion of papers presented at the meeting, the secretary has been requested to ascertain the titles of all papers which may be offered; these titles will be incorporated in the formal call for the meeting, and will take precedence on the bulletin over all other papers.

In order that suitable accommodations may be secured for all members of the society, please notify the secretary

before July 1, whether or not it is your intention to be present at the meeting, and if you will be accompanied by any member of your family.

S. B. ST. JOHN, Secretary.

DEPARTMENT OF THE INTERIOR, CENSUS OFFICE, }
WASHINGTON, D. C., May 1, 1889. }

TO THE EDITOR: The publication in your valuable paper of the accompanying letter to the medical profession will aid the Census Office in one of its most important and difficult investigations. If you should think the matter of sufficient importance to notice it editorially, it will be appreciated, as it is necessary to obtain the co-operation of medical men in all parts of the country to insure a successful result. This is all volunteer work on the part of the physician, and any assistance you may feel inclined to give will materially help a most important branch of statistical inquiry.

It is equally important to the country that the returns in relation to farm products and live stock should be full and correct. The enumerator in the house to house visit he will make during the month of June, 1890, is constantly met with the fact that farmers keep no books and hence returns are not infrequently guess work. The census year begins June 1, next, and ends May 31, 1890. If farmers throughout the country would note this fact and keep account of the products of their farms during the census year it would be of material aid in securing reliable returns for the Eleventh Census.

ROBERT G. PORTER,
Superintendent of Census.

DEPARTMENT OF THE INTERIOR, CENSUS OFFICE, }
WASHINGTON, D. C., MAY 1, 1889. }

TO THE MEDICAL PROFESSION: The various medical associations and the medical profession will be glad to learn that Dr. John S. Billings, Surgeon U. S. Army, has consented to

take charge of the Report on the Mortality and Vital Statistics of the United States as returned by the Eleventh Census.

As the United States has no system of registration of vital statistics, such as is relied upon by other civilized nations for the purpose of ascertaining the actual movement of population, our census affords the only opportunity of obtaining near an approximate estimate of the birth and death rates of much the larger part of the country, which is entirely unprovided with any satisfactory system of state and municipal registration.

In view of this, the Census Office, during the month of May this year, will issue to the medical profession throughout the country "Physician's Registers" for the purpose of obtaining more accurate returns of death than it is possible for the enumerators to make. It is earnestly hoped that physicians in every part of the country will co-operate with the Census Office in this important work. The record should be kept from June 1, 1889 to May 31, 1890. Nearly 26,000 of these registration books were filled up and returned to the office in 1880, and nearly all of them used for statistical purposes. It is hoped that double this number will be obtained for the Eleventh Census.

Physicians not receiving Registers can obtain them by sending their names and addresses to the Census Office, and, with the Register, an official envelope which requires no stamp. will be provided for their return to Washington.

If all medical and surgical practitioners throughout the country will lend their aid, the mortality and vital statistics of the Eleventh Census will be more comprehensive and complete than they have even been. Every physician should take a personal pride in having this report as full and accurate as it is possible to make it.

It is hereby promised that all information obtained through this source shall be held strictly confidential.

ROBERT G. PORTER,
Superintendent of Census.

F. C. DONDERS, +.

The sad news of the demise of the great physiologist and ophthalmologist, DONDERS, has shocked the whole of the literary world and the many personal friends of the departed, and has brought the deepest mourning to his nearest relatives.

The following lines are not written to express this sorrow in words—every attempt in this direction would be futile and useless; neither is it their aim to depict in an exhaustive manner the scientific value or the literary and didactic work of the great scientist—this would call for a more knowing pen than the one at the writer's disposal; they want simply to describe the exterior of the life of the dear departed in a few words; they want to be taken as a memorial of his now completed earthly career.

F. C. Donders was born May 27th, 1818, at Tilburg, in Holland. He was the son of a merchant who died a year later, 64 years old. Of his nine children F. C. Donders was the only boy.

His mother conducted his first education up to his seventh year. She then sent him to the grammar school at Duizel, in which the teaching was but very moderate. From his 13th to his 17th year Donders visited the Latin school at Boxmeer, where, according to his mother's wish, he was to be educated as a minister. Here, too, except in Latin, the teaching was very inferior, especially in mathematics and Greek, and, moreover, the mind of the growing youth developed in a manner which did not conform to the wishes of the mother. Donders tended much more toward the study of natural science than that of theology. He turned towards medicine, and began his medical studies in the military medical department of the University of Utrecht, in the year 1835, and graduated in 1840 at the

University of Leyden. After the conclusion of his studies he was first employed as military surgeon at Vliessingen, and then at the Haag. In 1842 he was ordered to the military school at Utrecht in the capacity of a teacher of anatomy and physiology, and in 1847 he was made professor in the medical faculty, although Schroeder van der Kolk still taught anatomy and held this chair until his death (1863). Meanwhile Donders arranged a physiological laboratory in a few rooms and taught general physiology and histology, and later on general pathology, forensic medicine and ophthalmology. He was often consulted by practitioners who paid especial attention to eye-affections concerning points in physiological optics, and he, himself, on the other hand, became interested in the pathological changes of the human eye, as throwing some light on the physiology of the healthy eye. Thus more and more, and almost against his will, he was led into the practice of ophthalmology.

This tendency towards practical ophthalmology, not premeditated at first, brought him to London at the occasion of the first great exposition in 1851, and into the house of the great London oculist, Sir William Bowman, and it was then and there that he met for the first time with A. von Graefe.

From the preface and dedication of his work on astigmatism and cylindrical lenses, (1862), as well as from Donders' oration, occasioned by the first awarding of the Graefe medal at Heidelberg in 1886, and held in memory of von Graefe, it is best seen how intimate was the bond of friendship which had sprung from that first meeting. In 1888 Donders said at a public occasion: "I believe I never loved a man as I loved A. von Graefe."

The first scientific discussion of these two men, who later in life became so intimate, at the hospitable board of Sir William Bowman, concerned a question which both of them—Donders as well as Graefe—had studied and about which—and this must have heightened the charm of the discussion most—they had come to results diametrically opposite.

Donders had put Hueck's opinion (that the oblique muscles

roll the eye around the optical axis) to a closer test and had found that the argument of Hueck was fallacious (observation of the movements of the experimenter's eyes in a stationary mirror). Donders stated that if a mirror is fastened to the observer's head, and parallel with his face, in such a manner that when the head is bent towards the shoulder this parallelism must remain unchanged, no rolling movements of the eyes can be observed in the mirror.

A. von Graefe, on the other hand, had made experiments, especially on rabbits and fish (animals with laterally situated visual organs). In these experiments the animals were fastened on their sides on a board which then was turned around an axis vertical to the plane of the board. During this manoeuvre strange rolling movements of the eyes were observed which suddenly were reversed in their direction as soon as the angle of rotation had reached a certain degree.

The matured results of these then unfinished experiments were three years later published as A. von Graefe's first paper in the first volume of the Archives of Ophthalmology founded by him.

In 1858 Donders founded with funds voluntarily contributed by the Hollandish people the "Nederlandsch Gasthuis for Ooglijders" (Eye Hospital of the Netherlands).

We give here a part from Moleschott's festival greeting for May 27th, 1888, as characterising best this institution which has now a world-wide renown.

"What, however, is the value of all our knowledge, what good is all our science, if we do not make use of it in charitable work?

"The answer to this question is given in the hospital for indigent sufferers from eye diseases of the Netherlands, and its founder was Donders.

"We really do not know what to praise highest in this wonderful institution, science or charity.

"Since no building could be found which might have been used for a hospital for eye-patients, the idea arose in Donders' mind to apply to the charity of the people of the Netherlands.

His wishes were met on all sides. Never had he to complain of opposition. The best and most esteemed personalities aided by means of their influence and their favor. In but a few months the erection of the hospital for eye-patients of the Netherlands was secured. From its beginning this institution could rival the best which then existed in Europe. Its first aim was to charitably help the poor sufferers from eye-diseases. Yet, at the same time the institution was made use of for the teaching of ophthalmology and the education of future ophthalmologists.

"Teaching, when in the hands of a man like Donders, means science, scientific investigation. The institution has at its disposal all the apparatus which will show the laws of light, the functions of the eye, in the healthy or diseased state. There is an anatomical museum which comprises the human, comparative and pathological anatomy of the eye and its appendages, a collection of microscopical specimens, as well as all the instruments necessary for operations on the eye, and finally a library to which all civilized countries are contributors.

"Eye-patients from all parts of the Netherlands and from other countries seek and have sought help at this hospital in large numbers; and the concourse of pupils was so great, that we can say of Holland with a better right than of any other country, that there is almost no city or town which could not boast of a well-educated ophthalmologist."

The erection and inauguration of the physiological laboratory of Donders happened in 1866 and 1867. This was the real workshop for his scientific work and teaching. Here he was active until the summer of 1888, when he completed his seventieth year, and had—according to the laws of Holland—to give up his official position as teacher.

The seventieth anniversary of his birthday was a memorable festival.

Whoever has seen him on that day—and the number of those who from near and far came on this day to see him and to pay him their homage—must have felt enraged at the hardness and injustice of laws which remove a man from his teach-

ing position, who like Donders matured in a long and active life, and vigorous in body and mind like a youth, stood in the presence of an endless number of congratulants.

But fate had decreed differently with regard to him! During August of the same year Donders still presided over the International Congress of Ophthalmologists almost without interruption from beginning to end, with unchanged vigor and with his peculiar agility of mind, yet, only a few months later the angel of death began the work of destruction.

While on a trip to London, on which he went soon after with his young wife, he suddenly lost the faculty of speech and his memory also began to give out. His friends hoped for improvement and recovery—but in vain! Although small changes towards the better aroused from time to time new hopes, it was soon no longer doubtful that this condition would slowly and continuously lead to death. His consciousness grew dim and was altogether lost during the last weeks of his life. Quietly and easily the end came on the 24th of March, of this year.

He left behind him to mourn his loss as his nearest of kin, two children of his only daughter from his first wife who had departed long before him, and his second wife who was vouchsafed a very short time only of a happy union with him.

(Zehender's Mtsbl.)